

What is claimed is:

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AV
steps of:

1. A method for processing a speech signal comprising the

receiving a speech signal to be processed;

dividing said speech signal into multiple frames;

5 analyzing a frame generated in said dividing step to determine a sound type associated with said frame; and modifying said frame based on said sound type.

2. The method claimed in claim 1, wherein:

said step of analyzing includes performing a spectral analysis on said frame to determine a spectral content of said frame.

3. The method claimed in claim 2, wherein:

said step of analyzing includes examining said spectral content of said frame to determine whether said frame includes a voiced or unvoiced sound.

4. The method claimed in claim 1, wherein:

said step of analyzing includes determining an amplitude of said frame and comparing said amplitude of said frame to an amplitude of a previous frame to determine whether said frame
5 includes a plosive sound.

5. The method claimed in claim 1, wherein:

said step of modifying said frame includes changing an amplitude of said frame when said frame is determined to include a first sound type.

6. The method claimed in claim 5, wherein:

said step of modifying said frame includes boosting an amplitude of said frame when said frame is determined to include an unvoiced plosive.

7. The method claimed in claim 1, wherein:

said step of modifying said frame includes changing a parameter associated with said frame in a manner that enhances intelligibility of an output signal.

8. The method claimed in claim 1, further comprising the step of:

modifying another frame based on said sound type determined in said step of analyzing.

9. The method claimed in claim 8, wherein:

said step of modifying another frame includes reducing an amplitude of a previous frame when said sound type is an unvoiced plosive.

10. A computer readable medium having program instructions stored thereon for implementing the method of claim 1 when executed within a digital processing device.

11. A method for processing a speech signal comprising the steps of:

providing a speech signal that is divided into time-based frames;

5 analyzing each of said frames in the context of surrounding frames; and

adjusting an amplitude of selected frames based on a result of said step of analyzing.

12. The method of claim 11, wherein:
said step of adjusting includes adjusting the amplitude of
a frame in a manner that enhances intelligibility of an output
signal.

13. The method of claim 11, wherein:
said step of analyzing includes determining a sound type
associated with a first frame.

14. The method of claim 13, wherein:
said step of adjusting includes increasing the amplitude of
said first frame when said sound type associated with said first
frame includes an unvoiced plosive.

15. The method of claim 13, wherein:
said step of adjusting includes increasing the amplitude of
said first frame when said sound type associated with said first
frame includes an unvoiced fricative.

16. The method of claim 13, wherein:

said step of adjusting includes decreasing the amplitude of a second frame that is previous to said first frame when said sound type associated with said first frame includes a voiced or
5 unvoiced plosive.

17. The method of claim 11, wherein:

said step of analyzing includes comparing an amplitude of a first frame to an amplitude of a frame previous to said first frame.

18. A computer readable medium having program instructions stored thereon for implementing the method claimed in claim 11 when executed in a digital processing device.

19. A system for processing a speech signal comprising:

means for receiving a speech signal that is divided into time-based frames;

means for determining a sound type associated with each of
5 said frames; and

means for modifying selected frames based on sound type to enhance signal intelligibility.

20. The system claimed in claim 19, wherein:
said system is implemented within a linear predictive
coding (LPC) encoder.
21. The system claimed in claim 19, wherein:
said system is implemented within a code excited linear
prediction (CELP) encoder.
22. The system claimed in claim 19, wherein:
said system is implemented within a linear predictive
coding (LPC) decoder.
23. The system claimed in claim 19, wherein:
said system is implemented within a code excited linear
prediction (CELP) decoder.
24. The system claimed in claim 19, wherein:
said means for determining includes means for performing a
spectral analysis on a frame.

25. The system claimed in claim 19, wherein:
said means for determining includes means for comparing
amplitudes of adjacent frames.
26. The system claimed in claim 19, wherein:
said means for determining includes means for ascertaining
whether a frame includes a voiced or unvoiced sound.
27. The system claimed in claim 19, wherein:
said means for modifying includes means for boosting the
amplitude of a frame that includes a sound type that is
typically less intelligible than other sound types.
28. The system claimed in claim 19, wherein:
said means for modifying includes means for boosting the
amplitude of a frame that includes an unvoiced plosive.
29. The system claimed in claim 19, wherein:
said means for modifying includes means for reducing the
amplitude of a frame that precedes a frame that includes an
unvoiced plosive.

30. The system claimed in claim 19, wherein:
said means for determining a sound type includes means for
5 determining whether a frame includes at least one of the
following: a vowel sound, a voiced fricative, an unvoiced
fricative, a voiced plosive, and an unvoiced plosive.